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DRAFTGUIDANCE FOR HEALTH CARE PERSONNEL DEALING WITH PATIENTS  
INFECTED WITH HEPATITIS B VIRUS

This document deals with the precautions suggested in order to minimise the transmission of hepatitis B virus from patients to staff and between patients.

General background

Hepatitis B is relatively uncommon in this country. A few per cent of the population become infected at some time in their lives. About 1 in 1,000 of the adult population are carriers of the virus and some 1,100 cases of acute hepatitis B are notified through laboratories each year. The majority of acute infections are sub-clinical and many are mild, but a small number of severe and occasionally fatal illnesses also occur. Approximately 5 - 10% of those infected become carriers of the virus. Carriers and patients with acute infections are identified by the presence of the surface antigen of the virus (HBsAg) in their blood. Some will have sufficient complete infective virus circulating in their blood to represent a hazard to health care personnel.

Identification of HBsAg positive patients

Some patients are known to be HBsAg carriers because they have been tested when donating blood. Others are identified as HBsAg positive by tests carried out because of acute or chronic liver disease. However, the majority of carriers and patients with asymptomatic acute infections who enter hospital or see their family doctor will not have been identified as being HBsAg positive. Repeated screening of all patients for HBsAg is impractical, but it should be noted that most unidentified HBsAg positive patients come from certain "high risk" categories in which hepatitis B is much more prevalent than in the general population. These are :

- a) Persons who have lived in countries where hepatitis B is a common infection, (e.g. many Mediterranean, sub-tropical and tropical countries).

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- b) Promiscuous male homosexuals.
- c) Intravenous drug abusers.
- d) Prisoners.
- e) Inmates of homes for the mentally retarded.
- f) Tattooed individuals.

Even if selective screening for HBsAg of patients in these "high risk" categories is employed it must be appreciated that not all HBsAg positive patients will be identified. Measures to minimise the spread of hepatitis B within the health care environment should take this into account.

#### Classification of HBsAg positive patients

- 1) Laboratory help should be sought if there is doubt about whether an HBsAg positive patient is a carrier or suffering from an acute infection. This information may be useful. For example, a non-urgent operation could be postponed in a patient found to be incubating acute hepatitis B.
- 2) The infectivity of the blood of HBsAg carriers can be assessed by testing for hepatitis B 'e' antigen (HBeAg) and its antibody (anti-HBe). During the early years of carrying the virus a carrier's blood contains HBeAg and is highly infective. Later HBeAg is replaced by anti-HBe and the infectivity of the blood is greatly reduced. The majority of HBsAg carriers will be found to have anti-HBe. They are unlikely to transmit the virus to others.
- 3) The blood of patients with acute hepatitis B virus infections should be regarded as highly infective until it is HBsAg negative or anti-HBe has developed.

#### Transmission of infection within the health care environment

- 1) Infection is almost always transmitted by blood, serum or plasma. Other body fluids may contain minute amounts

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of virus, but are of little importance in the spread of infection unless contaminated with blood.

- 2) The most common and important method of transmission to health care personnel is by the direct percutaneous inoculation of infective blood by a needle or other sharp instrument.
- 3) Virus can also infect via minute scratches, abrasions, bites, burns or via the conjunctivae or when ingested.
- 4) Airborne spread is not considered a significant mode of transmission.
- 5) Transfer of infective material can occur via contaminated surfaces, equipment, instruments, etc.

#### HBsAg positive patients in hospital

- 1) HBsAg positive patients may be admitted to an open ward.
- 2) They should be allowed the same activities as other patients and to use communal lavatories, crockery and cutlery.
- 3) Isolation techniques are needed only when a patient is bleeding or likely to bleed.

#### Precautions to avoid transmission

- 1) Particular care should be taken when using needles or sharp instruments on HBsAg positive patients and all parenteral procedures should be kept to a minimum.
- 2) Cuts and abrasions, whether on HBsAg positive patients or attendant staff should be covered with waterproof dressings.
- 3) Personnel should wear gowns, disposable plastic aprons and disposable gloves when dealing with discharge of blood, secretions, excreta and when mopping up spillages from an HBsAg positive patient. Eye protection will be required when splashing is a possibility. Spillages should be reported to a senior member of staff who should supervise clearing up.

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- 4) External surfaces of equipment and bench surfaces and non-disposable equipment that may have been contaminated and cannot be heat sterilized should be treated with 2% activated glutaraldehyde or sodium hypochlorite containing 1,000 ppm available chlorine. Both disinfectants should be freshly prepared. (N.B. Sodium hypochlorite can damage metal equipment). Contaminated gloves, paper tissues and cotton wool, etc., should be incinerated. Disposable glassware should be autoclaved before being discarded.
- 5) The practice of changing needles but not the syringe when injecting a number of patients with the same substance could transmit hepatitis B from one patient to another and should be avoided.

#### Surgery on HBsAg positive patients

It would be impractical and unjustifiable to designate a theatre and staff solely for operations on infective patients. Operations should, where possible, take place at the end of the day's list. The precautions required will vary according to circumstances, but the surgeon and his assistants will be at risk from needle pricks and cuts. All theatre staff should be aware when an infective patient is operated on and relevant accidents should be reported to a senior member of staff.

#### Clothing and linen on HBsAg positive patients

- 1) Unsoiled worn clothing and used linen present no danger and can be processed in the normal way.
- 2) Blood-stained materials and disposable gowns and gloves should be incinerated. Disposable linen and drapes should be used when contamination with blood is likely.

#### Withdrawal of blood

- 1) Gloves and gowns should be available for staff taking blood on the wards. Surgical-type gloves should be worn for all parenteral procedures and used only once.

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- 2) If blood samples are required for more than one test a single large syringe should be used.
- 3) Before discharging a blood sample the needle should be removed from the syringe. Needles should be placed in a wide-mouthed, rigid "sharps" disposal container and sent for incineration.

#### Transfer of laboratory specimens

- 1) All specimens from patients with suspected acute hepatitis B virus infection, and from known or suspected HBsAg carriers should be distinctly marked with an appropriate yellow warning label, (e.g. "Blood precautions").
- 2) All specimens should be sent in a leakproof screwcap container with a plastic bag, sealed but not stapled. The accompanying card or letter should be attached to the outside of the bag. The best containers are robust blood collection tubes, but it must be ensured that the screw cap has a liner and that the cap is properly tightened.

#### Handling HBsAg positive blood in the laboratory

Detailed procedures for handling HBsAg positive specimens are documented in the Health Services Advisory Committee : Safety in Health Service Laboratories; Notes for Guidance (No. 1 Hepatitis B).

#### Accidental inoculation or contamination

- 1) In the event of accidental inoculation or when a member of staff gets blood from an HBsAg positive patient into a cut or abrasion or into the eye or mouth the affected area should be washed well. The member of staff responsible for reports of accidents should be notified promptly and should telephone the nearest Public Health Laboratory or Hepatitis Reference Laboratory for advice.

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- 2) Supplies of hepatitis B immunoglobulin are held by the Public Health Laboratory Service.\*
- 3) Accidental inoculation may occur involving a patient of unknown HBsAg status. The patient should be tested for HBsAg as soon as possible to assess the possible significance of the incident. This is particularly important when the patient falls into one of the "high risks" categories mentioned above.

#### Hepatitis B vaccine

Guidance on the use of hepatitis B vaccine in health care personnel is contained in CMO (82) 13/CNO (82) 11 dated 15 October 1982.

#### Counselling of HBsAg carriers

It is recommended that anyone found to be an HBsAg carrier should be counselled about the ways in which the infection may spread and the precautions which can be taken to reduce the risk to others. It is helpful if the infectivity of individual carriers has been assessed by tests for HBeAg/anti-HBe.

#### Concluding observations

- 1) There is a continuing small risk for health care personnel of contracting hepatitis B at work. Even though it is unusual for such infections to be severe, it is sensible to try to minimize the risk by taking the precautions outlined above when dealing with HBsAg positive patients.
- 2) It is important to remember that many HBsAg positive patients remain unidentified. The avoidance of needle pricks and cuts and the careful disposal of "sharps" when dealing with any patient helps to reduce the risk of hepatitis B.

\* Footnote : Public Health Laboratory Service in England and Wales : Supplies are held by the Blood Transfusion Service in Scotland and by the Virus Reference Laboratory in Northern Ireland.

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- 3) Unnecessary restrictions and precautions may cause distress to HBSAg carriers and should be avoided.
- 5) Good communication between general practitioners, consultants and all health care personnel involved is essential for the correct management of HBSAg positive patients.

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